

CLAIMS

1. A solid freeform fabrication system for producing a three-dimensional object with embedded features, comprising:

5 build material configured to be deposited in layers to form a three-dimensional object; and

support material configured to be deposited adjacent to the build material for supporting the build material during formation of the three-dimensional object, said support material also being configured to form a feature that imparts a
10 predetermined property within the three-dimensional object.

2. A system as in claim 1, wherein the build material is a liquid that is configured to be deposited in layers using an ink-jet printhead.

15 3. A system as in claim 2, wherein the build material is UV curable.

4. A system as in claim 1, wherein the feature is within a cavity defined at least in part by the build material.

20 5. A system as in claim 4, wherein the cavity is a closed cavity that is completely defined by build material.

25 6. A system as in claim 4, wherein the cavity is an open cavity that is partially defined by the build material and is partially open to a surface of the three-dimensional object.

7. A system as in claim 1, where the feature imparts color.

8. A system as in claim 1, where the feature imparts conductance.

9. A system as in claim 7, wherein the build material is at least partially transparent.

10. A system as in claim 8, wherein the feature also includes additional
5 build material.

11. A method for solid freeform fabrication of three-dimensional objects, comprising:

10 layering build material to form a three-dimensional object, said three-dimensional object including a cavity therein that is at least in part defined by the build material;

supporting overhangs formed during the layering step using a first portion of support material;

15 depositing a second portion of the support material in said cavity, wherein at least the second portion of the support material is configured to form a feature that imparts a predetermined property within the three-dimensional object; and

removing the first portion of the support material from the three-dimensional object.

20 12. A method as in claim 11, wherein the step of layering includes step of jetting build material to form multiple layers of build material.

13. A method as in claim 12, further comprising the step of UV curing the build material after the jetting step.

25 14. A method as in claim 11, wherein the first portion and the second portion of the support material are of the same composition.

30 15. A method as in claim 11, further including the step of depositing build material within the cavity.

16. A method as in claim 15, wherein the build material is at least partially transparent, the support material imparts a color, and the build material and the support material are both present within the cavity at a 1:99 to 99:1 build material to support material volume ratio.

5 17. A method as in claim 11, where the feature imparts color.

10 18. A method as in claim 11, where the feature imparts conductance.

19. A method as in claim 11, further comprising the preliminary step of predetermining the location to place cavities within the three-dimensional object.

15 20. A method as in claim 19, wherein the step of predetermining is carried out with the assistance of a computer modeling system.

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